In the claims:

Please amend the claims as follows:

1-31 **(Cancelled)**

32. **(Currently amended)** A non-human transgenic animal comprising a transgene comprising a nucleic acid molecule encoding a fusion protein which activates transcription of a gene of interest operatively linked to a target DNA sequence to which the fusion protein binds, the fusion protein comprising a first polypeptide comprising a DNA binding domain operatively linked to a second polypeptide comprising a transcriptional activation domain, wherein the transcriptional activation domain comprises at least one copy of a mutated acidic region of herpes simplex virus virion protein 16 (HSV VP16), the mutated acidic region consisting of amino acid positions 436 to 447 of HSV VP16 (SEQ ID NO: 1) and having an amino acid substitution at position 442 as compared to wild type HSV VP16, the transgene being in a form suitable for expression of the fusion protein in cells of the non-human transgenic animal.

33. **(Withdrawn)** The transgenic animal of claim 32, wherein the mutated acidic region of HSV VP16 has the amino acid sequence of SEQ ID NO: 2.

34. **(Withdrawn)** The transgenic animal of claim 32, wherein the mutated acidic region of HSV VP16 has the amino acid sequence of SEQ ID NO: 3.

35. **(Withdrawn)** The transgenic animal of claim 32, wherein the transcriptional activation domain comprises the amino acid sequence of SEQ ID NO: 4.

36. **(Withdrawn)** The transgenic animal of claim 32, wherein the transcriptional activation domain comprises the amino acid sequence of SEQ ID NO: 5.

37. **(Withdrawn)** The transgenic animal of claim 32, wherein the transcriptional activation domain comprises the amino acid sequence of SEQ ID NO: 6.

38. **(Withdrawn)** The transgenic animal of claim 32, wherein the transcriptional activation domain comprises the amino acid sequence of SEQ ID NO: 7.

39. **(Withdrawn)** The transgenic animal of claim 32, wherein the transcriptional activation domain comprises the amino acid sequence of SEQ ID NO: 8.

40. **(Previously presented)** The transgenic animal of claim 32, wherein the first polypeptide is a Tet repressor.

41. **(Previously presented)** The transgenic animal of claim 32, wherein the first polypeptide is a mutated Tet repressor that binds to *tet*O sequences in the presence, but not in the absence, of tetracycline or a tetracycline analogue.

42. **(Previously presented)** The transgenic animal of claim 32, wherein first polypeptide is selected from the group consisting of GAL4, LexA, LacR and steroid hormone receptors.

43. **(Currently amended)** A non-human transgenic animal comprising a transgene comprising a nucleic acid molecule encoding a fusion protein which activates transcription of a gene of interest operatively linked to a target DNA sequence to which the fusion protein binds, the fusion protein comprising a first polypeptide comprising a DNA binding domain operatively linked to a second polypeptide comprising a transcriptional activation domain, wherein the transcriptional activation domain consists of three copies of an acidic region of herpes simplex virus virion protein 16 (HSV VP16), the acidic region consisting of amino acid positions 436 to 447 of HSV VP16 (SEQ ID NO:1), the transgene being in a form suitable for expression of the fusion protein in cells of the non-human transgenic animal.

44. **(Previously presented)** The transgenic animal of claim 43, wherein the first polypeptide is a Tet repressor.

45. **(Previously presented)** The transgenic animal of claim 43, wherein the first polypeptide is a mutated Tet repressor that binds to *tet*O sequences in the presence, but not in the absence, of tetracycline or a tetracycline analogue.

46. **(Previously presented)** The transgenic animal of claim 43, wherein first polypeptide is selected from the group consisting of GAL4, LexA, LacR and steroid hormone receptors.

47. **(Currently amended)** A non-human transgenic animal comprising a transgene comprising a nucleic acid molecule encoding a fusion protein which activates transcription of a gene of interest operatively linked to a target DNA sequence to which the fusion protein binds, the fusion protein comprising a first polypeptide comprising a DNA binding domain operatively linked to a second polypeptide comprising a transcriptional activation domain, wherein the transcriptional activation domain consists of four copies of an acidic region of herpes simplex virus virion protein 16 (HSV VP16), the acidic region consisting of amino acid positions 436 to 447 of HSV VP16 (SEQ ID NO:1), the transgene being in a form suitable for expression of the fusion protein in cells of the non-human transgenic animal.

48. **(Previously presented)** The transgenic animal of claim 47, wherein the first polypeptide is a Tet repressor.

49. **(Previously presented)** The transgenic animal of claim 47, wherein the first polypeptide is a mutated Tet repressor that binds to *tet*O sequences in the presence, but not in the absence, of tetracycline or a tetracycline analogue.

50. **(Previously presented)** The transgenic animal of claim 47, wherein first polypeptide is selected from the group consisting of GAL4, LexA, LacR and steroid hormone receptors.

51. **(New)** A homologous recombinant non-human transgenic animal comprising a transgene comprising a nucleic acid molecule encoding a fusion protein

which activates transcription of a gene of interest operatively linked to a target DNA sequence to which the fusion protein binds, the fusion protein comprising a first polypeptide comprising a DNA binding domain operatively linked to a second polypeptide comprising a transcriptional activation domain, wherein the transcriptional activation domain comprises at least one copy of a mutated acidic region of herpes simplex virus virion protein 16 (HSV VP16), the mutated acidic region consisting of amino acid positions 436 to 447 of HSV VP16 (SEQ ID NO: 1) and having an amino acid substitution at position 442 as compared to wild type HSV VP16, the transgene being in a form suitable for expression of the fusion protein in cells of the non-human transgenic animal, wherein the transgene is integrated at a specific site within the genome of the animal.

52. **(New)** The transgenic animal of claim 32, wherein the first polypeptide is a Tet repressor.

53. **(New)** The transgenic animal of claim 32, wherein the first polypeptide is a mutated Tet repressor that binds to *tet*O sequences in the presence, but not in the absence, of tetracycline or a tetracycline analogue.

54. **(New)** The transgenic animal of claim 32, wherein first polypeptide is selected from the group consisting of GAL4, LexA, LacR and steroid hormone receptors.